

## ABSTRACT OF THE DISCLOSURE

A method is disclosed for mapping the active site of kinases which covalently modify a substrate by phosphorylation of a modifiable residue selected from tyrosine, threonine or serine residues in the substrate molecule. The kinase enzyme is subjected to libraries of mixtures of putative substrates and the presence of phosphorylated substrate is determined without removal of unphosphorylated substrate moieties from the mixtures. The libraries are arranged in sub-libraries where each sub-library comprises mixtures of putative substrates in which the modifiable residue is in a respective fixed position in each sub-library.